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A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

AUGUST 5, 1891

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Hints for the Improvement of Summer Vacations.
Editorial.

The Japanese Photinia. (With figure.)
By Professor Sargent.

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By Charles V. Piper.

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The paper will contain an illustration of Abies lasciocarpa and Tsuga Pattoniana on Mount Ranier, Washington, and a figure of Photinia villosa, from a drawing by Mr. C. E. Faxon.

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An Object-lesson in Road-building.

THE trustees of Cornell University at their recent meeting took action which promises to give important assistance to the movement for reform in the construction and care of country roads. Whenever a community is urged to mend its highways, the usual response is the inquiry, What kind of roads shall we build? This is a simple and pertinent question, but in most cases it is a difficult one to answer. The subject of road-construction is not so thoroughly and generally understood that it is an easy matter for the intelligent people of any community to say what form of road-bed would best suit the conditions of the country and the capabilities of the tax-payers. There are whole counties in the rural districts which do not contain a single engineer who is competent to give professional advice on a matter of this sort, and there are hundreds of square miles which do not contain a single rod of roadway which can be used as an example of good and economical construction. It is, therefore, a matter of prime importance to multiply examples of good roads, so that their advantages can be appreciated and their construction understood.

Now, the action of the trustees of Cornell University is particularly encouraging, in that it does propose to furnish the necessary object-lessons for studying the practical benefits of the best available roads, and to offer accurate explanations of the methods used. It was on motion of President Andrew D. White that a resolution was adopted directing the Professor of Civil Engineering, the Professor of Agriculture, and the Professor of Horticulture in the university to prepare a plan for putting the roads in the university property into the best possible condition. These officers are instructed to use the material which shall be most suitable and economical, preferably such as can be obtained in the neighborhood of the university, and that the project shall be carried out with a view to secure thoroughness and permanence, and, at the same time, with the strictest regard to economic construction. The committee is to prepare estimates of the cost of various methods of road-building and improvement, and they are advised that it is the opinion of the board that the different roads should not be all constructed on one plan, but upon the different systems, which experience elsewhere has proved to be worthy of a trial. It is, of course, understood that a careful account shall be kept, not only of the cost of constructing these various roads, but of maintaining them. It is further ordered that, when any road shall have been completed, an inscription shall be set up near it, at some point within public view, giving in detail, for the information of the public, the cost of a mile of such a road. At a later period a statement shall be added as to the average cost of its maintenance by the mile every year.

In more than one of our agricultural colleges courses of lectures are already given on road-construction, and it is certainly important that these institutions, which are founded by the bounty of the Government for the promotion of agriculture and the mechanic arts, should give instruction on a subject which is so vital to these interests. But this is one step in advance, and will offer opportunities for investigation to every one who wishes to estimate the advantages of good roads over bad ones, and to compare intelligently the merits of one good road with another. The influence of these model roads will extend beyond the immediate range of the community whose members ride over them daily, for the university attracts many visitors as a growing centre of interest to all interested in rural affairs in one way or another, and besides this, its professors, who publish bulletins of progress and who attend farmers' institutes in various parts of the state, will not fail to sound the praises and illustrate the value of these model highways.

It is altogether proper that the Professors of Agriculture and Horticulture should unite with the Professor of Civil Engineering in this matter. One of the most important matters in road-construction is proper drainage, and those who deal with soils should be competent advisers in the disposition of surplus water. Besides this, a road means something more than a mere wheelway. It should not only be a smooth surface to ride over, but it should be a pleasure to the eye. Even in its grading and alignment the appearance of the country should not be neglected, and on its borders the question of what to plant and how to plant, what vegetation to encourage and what to destroy, are matters in which the counsel of a professor of horticulture and landscape art ought to command respect.

New Hampshire Scenery.

THROUGHOUT the entire broad belt of parallel mountain-ranges included in the Appalachian system and extending from Quebec to Alabama, there is hardly a square mile in which the scenery is altogether tame or uninteresting. Persons who have been born and reared among these foot-hills or in these mountain valleys are almost invariably depressed when they find themselves in a land which is flat and comparatively featureless, because the variety of prospect which arises from a diversified surface has come to be a part of their mental conception of a country which is home-like and hospitable. From every elevated point in all this region one can enjoy a picture which has a character of its own, and yet shows a kinship to all the rest. The constitution of the forest may vary, the sky-line of the distant mountains may have a different sweep, the flowers by way-side or by brook-side may be unfamiliar, but, after all, a subtle relationship can be traced between them all, so that one who has passed his life among the luxuriant forests and towering heights of western North Carolina will find enough that is distinct in the scenery of New Hampshire to invest it with the charm of novelty and yet enough that is familiar in its character to remind him pleasantly of home.

As the Appalachian system is narrowed in and lifted to greater elevations in New Hampshire, its mountain scenery is, of course, bolder than that of Pennsylvania, for example, but a picture of one of its quieter landscapes, like that in the foreground of the illustration on page 366, might have been taken in any one of half a dozen states. The dim outlines of the distant mountains, however, have a nobility which belongs peculiarly to the White Hills—a certain massiveness and grandeur which is only seen at points where the Appalachian ridges attain their greatest altitude. Aside from the distant mountain view, the sparkling water and graceful masses of foliage which make up this picture can be found in an hour's walk from almost any part of the hill country of which we speak. This particular picture seems so beautiful because the artist who caught it has the rare instinct to select the proper point of view to make a perfect composition. There are a hundred brooks which hurry down the slopes and loiter in these valleys which are as beautiful as the one in the picture. They may be overhung, as this one is, by Elms and Alders, or by Birches and Willows, or by Hornbeams and Black Ashes, but they always foam and tumble in the same happy way down mountain-slopes among rocks covered with ferns and mosses and then spread out in shallows, as this one does, to mirror the light of the sky and give life and sparkle to the landscape. A country where the air is filled with the murmur of brooks is always a beautiful country. Running water is itself beautiful, and it means a rolling and broken surface with hills and mountains down which it flows with abundant moisture to ensure a mantle of verdure for every scene.

A "Massachusetts Forest."

IT is remarkable how little the populations of our great cities often know of prominent and important features of the landscape close at hand. A notable instance of this is to be found in the beautiful range of the Blue Hills, near Boston. These hills are the highest elevations in eastern Massachusetts, and are the only eminences of a distinctively mountainous character near the Atlantic coast-line of the United States south of Mount Agamenticus, near Kittery, in Maine. The highest summit is known as the "Big Blue," and is the westernmost of the range, where stands the stone tower of the Rotch Meteorological Observatory, a privately endowed institution, which is performing a valuable scientific service. This summit is 635 feet above the sea-level, but being so near the ocean that altitude shows for its full value, giving an appearance of height greater than that often possessed by inland elevations very much superior.

The Blue Hills are the most prominent landscape feature of the coast of Massachusetts Bay and of the "Boston Basin," as it is called, of which they form the southern wall. Their noble undulating lines, presenting a succession of gracefully sweeping curves, like inverted crescents, form charming backgrounds of the views to the southward from Franklin Park and the Arnold Arboretum. From the former, the range, lifting itself without foreshortening on the thither side of the Neponset Valley, and thereby gaining in dignity and apparent elevation, appears to be included in the park which, in the noble vista from the southern end of the Playstead Overlook down the great central meadow of the Country Park, seems to stretch away to the very base of the hills. This lovely pastoral landscape has a beautiful complement near by. From the outlook point of the recently completed Loop road of the Wilderness in the park, the Blue Hills form the background of a perfect sylvan picture, making the focal element of the composition, as it may well be called, of one of Mr. Olmsted's most exquisite creations. Whoever has seen this enchanting view—standing at the edge of a parapet at the head of a rocky ravine in the steep hill-side, with a glimpse of the main drive of the park smoothly gleaming as it curves and loses itself in the trees just below with a sort of river-like effect (very much, it may be presumed, like those simulations of water made with surfaces of sand in the gardens of the Japanese), and overlooking an unbroken billowy expanse of woodland, varied with the shadings and forms of commingling deciduous and coniferous trees, the stately hills closing in the vista—whoever has seen this will not be likely to forget it. It is one of those rare landscape passages which, like that sight of the Wartburg framed in the foliage of the Thuringian forest from a hill-side near Eisenach, is treasured most preciously in the memory, and is destined to become equally famous.

The Blue Hills are thus familiar to thousands at a distance, and very many who have thus gazed in delighted admiration have been filled with the curious longing, that generally arises at such times, to know them close at hand and gaze from their summits over the widespreading landscape that must thence be disclosed. But of those thousands very few have ever visited the spot, although the hills are, indeed, a favorite excursion-ground for many nature-lovers—like the members of the Appalachian Club, for instance. It would be thought, however, that a range of hills like this, close to a great city, would long since have become popular and celebrated as a pleasure-resort, as they certainly would in the neighborhood of a European metropolis.

The views from those summits are remarkably far-reaching and varied. They embrace a great extent of coast and inland scenery: the blue sea indenting the shores, meandering rivers, wide meadows and plains, clustering towns, forest-expanses, hilly undulations, and the lofty peaks of far-away mountains—Monadnock and Wachusett, with other ranges more distant. To the northward lies the great city, spreading until its mass of buildings is lost beyond the hills which they cover. Its noise is hushed, its bustle not apparent save in the smoky streamers that float like dusky pennants in the air. One feels no sense of the swarming multitudes with their manifold occupations, burdens and cares, concentrated in that space which, though so limited in comparison with the vast encircling horizon, holds a third of the population of the next to the most densely populated state in the Union. To the southward, however, the contrast to the city is impressive. Save for a peeping spire, or a distant town that seems but a wee cluster of houses, seen at intervals, the earth's surface appears as a vast wilderness, almost as unbroken as it must have looked when the eye of a white man first gazed from these hill-tops. Close at hand, on the southerly side, just at the foot of the Big Blue, nestles the beautiful placid sheet called Ponkapog Pond. Near by Mr. T. B. Aldrich, the poet, has his summer-home amid surroundings where it seems hardly possible that it could be only twelve miles removed from the turmoil of a great city.

In all this varied landscape human occupancy seems but a passing incident, much as it has done to change the face of nature. The abiding impression is that of Nature herself, and humanity appears to be but one of her forces, temporarily modifying the earth's surface, like the beavers, the ants or the earth-worms. And how the trees serve to veil the structures of man! I have been struck by this even on the verge of London, where trees seemed the main feature, with brick walls and roofs but peering between them. After all it would take but a few years of absence on the part of man for all this expanse to relapse into utter wildness, wiping out all signs of our handiwork just as the sponge effaces the chalk-marks from a blackboard.

The air on these hill-tops is like that of the mountains, pure and bracing, for the winds sweep freely from all sides. Here would be an ideal place for a great sanitarium, for close-at-hand people of limited means, who cannot afford long journeys, would find all the attractions of air and scenery for which many are accustomed to travel hundreds of miles.

The most convenient way to reach the Blue Hills is to take the cars of either the Providence division of the Old

Colony, or the New York & New England, to Readville Station, in the town of Hyde Park. The two stations are within a few hundred feet of each other. From here it is an easy walk of something over two miles to the place where the Canton turnpike crosses the westerly shoulder of the Big Blue. There are also carriages always to be had at the railway-stations at reasonable rates. The way to the hills is over pleasant roads. It is only a short distance to the Neponset River, which is crossed by a picturesque stone-arched bridge. Passing the river we come into the town of Milton, one of the wealthiest and most beautiful in the neighborhood of Boston. It is filled with fine country-seats. The land is mostly in large holdings, the cutting up into small lots and the encouragement of a numerous population having been discouraged by the residents. The consequent effect is to give the town a peculiarly English, park-like character.

The Blue Hill range is chiefly in Milton, though a large portion lies in Canton, the next town to the southward, and in the city of Quincy, to the eastward. It is not generally known that it is to these hills that the commonwealth of Massachusetts owes its name. The country about the bay was called by the Indians living hereabout "Massachusetts," a word which in the Algonquin tongue literally means "the Great Hills Place." Thus it was that Massachusetts Bay received its name; thence the colony and the province of Massachusetts Bay, and finally the commonwealth of Massachusetts. It seems appropriate that the last remnant of the Indians hereabout, the Ponkapog tribe, lived on the southerly verge of these hills at the place that still bears their name, and where possibly some of their descendants may yet be found absorbed in the rural population of the neighborhood.

Even merely for the sake of commemorating the origin of the name of the great state from which has arisen the glorious fabric of our mighty republic, with its free institutions—aside from the remarkable beauty and picturesque character of the region—it would seem to be extremely desirable that this noble range, which thus gave Massachusetts its name, should in some way be forever dedicated to public uses. The best way to accomplish this end would seem to be for the state to take the entire region occupied by the hills, which is still for the greater part in a wild, woodland state, and make a permanent forest-reservation of it. "The Massachusetts Forest" would be an exceedingly appropriate name for the place.

It would require a special legislative act for the purpose. Action under the Public Forest Law—under which, by the way, nothing has ever yet been done—would be hardly practicable, as it would be difficult to get the three communities in which the range lies to unite to this end. If the matter were properly brought before the legislature the patriotic purpose underlying the proposition, which should appeal to every true son of Massachusetts, ought to be sufficient to secure favorable action, to say nothing of the great benefit which would be conferred upon the entire state by the creation of so beautiful and valuable a public domain. Within sight of these hill-tops there lies more than half the population and more than half of the property value of this thickly peopled and rich commonwealth. The establishment of such a public forest would greatly advance the happiness and health of this population, and would thereby, in increasing the attractiveness of the region, correspondingly enhance its prosperity.

A special act, taking this region for the purpose, and providing the means for its administration and improvement, would, therefore, be necessary. It would probably be a good idea to place the domain in charge of the newly created society called "The Trustees for the Preservation of Beautiful and Historic Places." The task could be entrusted to no more willing and capable hands.

The cost would not be great. The land is rough and of comparatively little value. Much of it would probably be given by the owners for such a purpose, as was the case with the Great Woods of Lynn. The rest could be obtained at low figures, either by ordinary purchase or under the right of eminent domain.

The improvement of a tract of such a nature would be comparatively inexpensive also. The most that would be needed would be to protect it from fires and other devastations, and to secure a forest-growth where desirable. Then a system of good roads, winding along the slopes, with vistas opening out through the trees here and there, and with branches to the summits, should be created. This system, connecting with the nearest railway points, would render the range easily accessible to the great population of the city and of the entire surrounding region. It would form one of the most beautiful drives, and a service of popular conveyances could be arranged for at cheap rates that would take passengers from one end of the range to the other, going by one railway route and returning by another. A round-trip ticket, covering the entire excursion, would bring it within the means of the multitude.

Favorable sites for hotels, sanitariums, restaurants, etc., could be leased to the right parties, under proper conditions, and, possibly, these might be approached by lines of electric railway connecting with the suburban services of the steam lines. With such conveniences these institutions could not fail to be liberally patronized, with a long season, lasting from spring-time well into the autumn.

By all means, then, let us have our "Massachusetts Forest." To that end I would suggest that persons naturally interested in bringing it about—such as the members of the Trustees for the Preservation of Beautiful and Historic Places, or of the Appalachian Club—take the matter definitely in hand, inform themselves as thoroughly as possible on the subject, including the character and conditions of the region, and unite in bringing it to the attention of the next General Court of Massachusetts.

Boston. *Sylvester Baxter.*

How We Renewed an Old Place.

XV.—SUFFERINGS FROM DROUGHT.

ON the south shore of Massachusetts Bay almost every summer sees a long period of rainless weather. The thunderstorms that gather portentously after hot days are apt to drift away to the north, with only the tiniest sprinkling of our dusty roads and parched fields, to pour their wealth upon the crags of Swampscot and Lynn, Beverly and Marblehead. With jealous eyes we watch the rain descending upon our opposite neighbors of the north shore, while we continue to dry up for want of it.

This period of dry weather usually begins about the last of June and continues well into August, which is ordinarily wet and muggy, but the spring and summer of 1891 seem disposed to defy precedent. April, which from time immemorial has been depended on for showers, this year completely spoiled its record, and only gave us an inch and a fraction of rain. This was followed by a dry, cold May, and then came the first half of June without a drop, culminating in two days the like of which we seldom see, the mercury touching ninety-seven degrees in the shade. Then, at last, down came the floods with a rush, and refreshed the parched and thirsty earth for days, the first continued rain-storm for three months, sorely needed by the suffering hay-crop and the dwindling trees.

During a rain in this locality, where the soil is light and sandy, the care of lawns and gardens has to be incessant. Fortunately our old town has a fine supply of aqueduct water brought from a nearly inexhaustible pond within its limits, and the hose can be brought to bear with effect upon the worst places; but this, like other restoratives, must be used with moderation. Too much water cakes the soil and draws the roots to the surface, so that, once begun, it must be continued or the plants die. It is better, we find, to water heavily two or three times a week than to keep up a continued sprinkling. If the water plays upon trees and shrubs during hot sunshine, the leaves are apt to scorch and shrivel, and the same is true of vegetables, which are well known to resent being watered on a hot day.

At Overlea the garden, which lies low along the edges of the meadow, can get along very fairly without watering. Even this year the strawberry crop, which is very sensitive to a lack of moisture, did not suffer from the dry weather, possibly owing to heavy mulching with straw while the ground was

moist from showers. The worst of droughts in June is never so bad as the same dryness in July, for plants, which are then in fullest vigor, can better bear the strain upon their constitutions at that time; it gives them a set-back, however, which prevents a vigorous growth. Grass is the greatest sufferer, and the first hay-crop is often ruined by lack of rain, as was the case this year in our neighborhood.

Upon the sandy knoll where our house is situated, and especially along the street, in places only accessible to a very long hose, the trees and turf suffered greatly, and the sudden drop of fifty degrees of temperature at the end of the period of drought, had a most disastrous effect upon the leaves, which shriveled and curled and turned red, and dropped off in many instances. A vigorous young Catalpa on our lawn, which, after the cautious manner of its kind, only ventured to put on its spring gown after the first of June, and then undertook to blossom freely, was so distressed by the changes of the weather that, after the storm, we found at least two bushels of leaves strewing the ground beneath it, and many others in such a condition that the lightest touch would detach them. Enough remained, however, to protect the blossoms, which are wonderful productions for a tree to bear. If each one grew in a garden on a single slender stem one would value it for its exquisite painted beauty, and delicate perfume; and to find a great spike of them decorating a burly tree is a constant source of astonishment at the prodigality of Nature. It is like the appearance of a fine gentleman of the last century in a ruffled shirt and diamond shoe-buckles, among the more plainly coated *fin de siècle* beaux of our own day.

I have a great admiration for a Catalpa; its huge vivid green leaves give it a semi-tropical air, and its sensitiveness to cold and storm shows that it comes naturally from a warmer clime than ours. I try to console it for its exile by lending it in summer-time our Amazon parrot for a companion, and there is no prettier sight than the vision of this lovely green bird, of exactly the shades of the sunlight and shadow on the Catalpa-leaves, pluming himself untethered upon the inner branches, only caged by the dome of the great boughs with their verdant canopy. When the leaves are in their prime he is perfectly concealed from view by his color, even when he takes a fancy to perch upon an outer bough; and there he mocks and jeers at the passers-by with songs and laughter and merry cries, till you would think a whole primary school was let loose upon the lawn and all the pupils calling each other by name, or else that this was a lunatic asylum.

To return to the line of trees that border the street. We find that it is not safe to leave them without a heavy top-dressing to act as mulch, and this application having been delayed this year by press of business, we found one good-sized Elm, that we imagined to be settled for life, dropping its leaves and turning brown in a most unbecoming manner, while the smaller and more recently planted trees were also showing signs of distress. A good dousing and dressing brought them all to, however, and when the mowing of the swale after the rain allowed us to make the rounds of the plantation, we discovered that the only serious sufferers were our newly set Pines, which are bringing the hill into disrepute by their brown and sear condition. This eminence naturally suffers severely from drought and hot weather; the little Oaks and Chestnuts burn up, and the Pines wilt distressingly, but they are so numerous that there is nothing to be done for them but to await the survival of the fittest. An Oak once rooted is rooted forever, but it is a question of time as to when it can maintain its top, and ours have burned off year after year, until now they seem to have gained vigor enough to hang on in spite of fate.

Among the searching questions that are put to the members of the Society of Friends, in their meetings for the investigation of personal character, one of the queries is, "Has any Friend entered into business beyond his ability to manage?"

This question we are obliged to answer in the affirmative when we take time to ask it of ourselves, for, having outlined work enough for a dozen men, it becomes a puzzle how to carry it on with only the aid of one factotum; extra hands being very hard to obtain in this village during the summer months. Much that we do is accordingly a makeshift. I am sadly obliged to confess to the existence of weeds where no weeds should be, of neglected spaces, of trees on the hill smothered by grass, of rose-bugs unslain, and caterpillars left at large; of a struggle for general effect, rather than a realization of neatness in detail, all of which is most reprehensible and melancholy. We look at our neighbors' neat gardens with remorse and envy, and can only console ourselves by reflecting that when they are gone the weeds will have their way, but that in our struggle with nature in the end the trees will win and trample the weeds under their mighty feet, and rear their stately heads proudly, while the Beets and Carrots of a future generation are still struggling with their yearly foes.

In a recent visit to the shores of the Merrimac, I have seen hills carpeted with the fallen leaves of haughty Pines that have numbered some centuries of growth, and I can smile at the flaunting Daisies of the hill, which overtop our baby Evergreens, and threaten to exterminate them. Your days are numbered, O weeds! Wave now and dance in the sunshine while you may, for the first nails are being driven in your coffins. Little you reck that the small brown spines that disappear at your roots are the first drops of a rising tide that is to bury your bright blossoms, and strangle your weedy growth. For a few years to come you may preen yourselves upon the hill-side, but the tiny seedlings below are rising higher and higher, wider spread their green arms, thicker falls the brown shower, which at first nourishes your gaudy uselessness, but at last shall arise and overwhelm it forever. The gay and trivial have their little day of sunshine and triumph, but the strong roots of serious vigor endure when the sunlight fails and the winter winds blow. Everything in the lower is typical of the higher life, and the Ephemeral for a time seems brighter and stronger than the Eternal; but not forever. Though speed may tell in a short race, it is bottom that wins the long ones, and it is the patient who inherit the earth.

This is the great lesson of the forest, the philosophy it plants in him who nourishes it and awaits its growth. In the faint rustle of the tiny leaflets I hear the murmur, "Wait!" and as I wander under the shade of trees a hundred years old, I hear the echo far above me of that tender cry, in a solemn whisper: "Wait! They, too, shall be as we are, giants in their day. What matters it that thy little life will be long over? for thee the weeds and battle, for others the shade and rest. Plant thou! that is thy mission, and the joy of him who reaps the fruit of thy labors shall be no greater than thine. Knowest thou not, O thou of little faith! that to look forward is the best of joys? Thy reward is renewed to thee daily in thy hope. Learn patience, and content thy soul."

And so the young trees and the old alike give counsel to him who can understand their language, whether he bends to listen to the soft voice at his feet, or lifts his head to catch the diapason of the overarching forest; encouraged by the lesson, we take up our burden anew, in our case the burden of a watering-pot, and do battle with the drought with a braver heart and sturdier resolution.

Hingham, Mass. *M. C. Robbins.*

Changes Which Trees Create.

APART from the influence of trees upon the general climate of a country, which has over and over again been proved to be very great, trees play a very important part in ameliorating the extremes of temperature in a local sense. Many of what are now our most enjoyable country-seats but for the presence of trees would be little better than bleak and comfortless downs. In situations where hills and valleys alternate, much may be done by a judicious selection of the spot where the dwelling is to be placed; but even then, without the presence of trees, the site is never complete. The charm of what are now some of the most lovely spots in these islands would at once vanish if they were deprived of their trees, and not only their charm in a picturesque sense, but in that of bodily comfort. To one who has dwelt upon a more or less bare and wind-swept upland, the sense of comfort in the removal to a spot sheltered by clustering woods will be very grateful, and more eloquent than the most fluent description.

In considering the best use which can be made of trees for shelter, the conditions existing must, of course, be taken into account, namely, whether the house is already in existence, and the trees have to be arranged to produce the greatest amount of shelter in harmony with the necessities of the landscape, or whether the trees and woods are already growing, and the position of the house has to be determined upon from these. In the former case, for climatic reasons, the situation and alignment must be determined on to give the greatest resistance to the prevailing winds. In some cases other circumstances may interfere with this, but it is not often, with proper arrangement, such difficulties cannot be overcome. Other pens have condemned the practice of dotting trees about instead of throwing them into suitable masses, as an offense to the eye, and if it is desired to defeat the end of obtaining shelter from trees, this objectionable system will be the sure means of doing it, as trees so planted can be of no appreciable use for the purpose.

As in the landscape, so for equalizing heat and cold, trees and woods are required, and must be grown in masses. In

some parts of this country, although not the coldest, the winds, which are generally most unpleasant on account of their strength and prevalence, are the west and south-westerly ones. From these some shelter is most desirable, but as, on the other hand, the afternoon sun shines from this direction, some discrimination is necessary that in cutting off the effects of the wind the sun is not excluded as well. There is no reason, however, why the advantage of both should not be gained, as by the suitable arrangement and selection of subjects there need be no great difficulty in the matter.—*The Garden* (London).

New or Little-known Plants.

New Orchids.

ODONTOGLOSSUM × EXCELLENS, Rchb. f.—It is interesting to observe that the parentage of this handsome natural hybrid has now been proved. Mr. Seden, the well-known hybridist of the firm of Messrs. James Veitch & Sons, of Chelsea, has obtained it by crossing *O. Pescatorei* with the pollen of *O. triumphans*, the plant having flowered for the first time during May of the present year.—*Gardeners' Chronicle*, June 20th, p. 754.

ZYGOPETALUM GUTTATUM, Rchb. f.—This long-lost species has apparently reappeared, a specimen having been sent to Kew for identification by Mr. J. O'Brien, of Harrow-on-the-Hill, which, although not quite identical with the original form, still appears to belong to the same species. It belongs to the section *Promenæa*, and bears much resemblance to the elegant little *Z. xanthinum*, with which it grows, as both appeared out of the same clump of plants. The flowers are light yellow, the sepals and petals with numerous light brown spots, the base of the column dark purple, and the basal half of the lip marked with the same color.—*Gardeners' Chronicle*, June 27th, p. 784.

ODONTOGLOSSUM × LEROYANUM, Castle.—This interesting hybrid, in reality a variety of *O.* × *Wilckeanum*, and proves the parentage so long suspected, was raised by Monsieur Leroy in the collection of Baron Edward de Rothschild, of Armainvilliers, near Paris, by crossing *O. crispum* with the pollen of *O. luteopurpureum*. There is an excellent colored plate in the April number of *L'Orchidophile*, p. 112.

AERANTHUS BRACHYCENTRON, Regel.—A species said to have been imported by Messrs. F. Sander & Co., of St. Albans, probably from the Comoro Islands, and received at the St. Petersburg Botanic Garden as *A. Grandidierianus*, Rchb. f., which, however, is quite different. I do not see any character by which the supposed novelty can be distinguished from *Aëranthes* (not *Aeranthus*) *grandiflorus*, Lindl., with which I believe it to be synonymous.—*Gartenflora*, xl., pp. 323, 324, fig. 68.

Kew. *R. A. Rolfe.*

Plant Notes.

Some Recent Portraits.

The July issue of the *Botanical Magazine* will not, from the nature of the plants figured, be found as interesting, perhaps, as usual to horticulturists. It contains portraits of *Musa Basjoo* (t. 7182), a species which has the habit and general characters of the common *M. sapientum*, although differing from all other cultivated Plantains and Bananas in structural details. This plant, which was introduced into England from Japan by the Messrs. Veitch, in whose nursery at Coombe Wood it stood in the open ground for a number of years, is supposed to be a native of the Liu-kiu Archipelago, a group of islands which stretches from Japan nearly to Formosa, and to be the plant cultivated in southern Japan for the fibre yielded by its leaves; *Hibiscus venustus* (t. 7183) is described as a magnificent species whose native country is doubtful, it having first been made known from a plant cultivated in Java. The portrait is from a specimen grown in England, and supposed to have been procured from the island of Tahiti. *H. venustus* is a large shrub clothed with short, close pubescence, stout branches, large, nearly orbicular, deeply lobed leaves, and pale yellow inclined flowers three inches in diameter; *Synadenium arborescens* (t. 7184), a Euphorbiaceous shrub of Natal, rather curious than beautiful; *Masdevallia platyglossa* (t. 7185), a small and very inconspicuously flowered species of no more garden value than many others of this now popular genus. The leaves are three or four inches long, oblong or elliptical-lanceolate, acute and coriaceous. The flower-stems are as long or longer than the leaves, and are pendulous, as thick as crow-quills, sheathed with pale greenish yellow sheaths and bear pale yellow flowers streaked bright red on the ovary; *Stenoglottis longifolia* (t. 7186), a terrestrial Orchid from Natal, with lilac-purple flowers. The genus to which it belongs has hitherto been represented by a single species, the *S. fimbriata* of Lindley, also a native of Natal, and distinguished from the present plant by its shorter oblong leaves, narrowed at the base and blotched with black, a slender scape, and fewer and smaller flowers.

A beautiful colored plate of *Nepeta Mussini* is published in the 1st of July number of the *Revue Horticole*, accompanied by a note from the pen of Monsieur André, who recommends this small Caucasian Labiate as an admirable subject to grow in the rock garden in sunny and exposed situations. Like the other species of the genus, the whole plant possesses a strong and aromatic odor. The flowers, which are light blue and contrast pleasantly with the pale puberulous foliage, appear from May to July in the neighborhood of Paris. If the flower-stalks are removed, the plants will produce another crop of flowers toward autumn.

The *Gardeners' Chronicle* of July 4th contains two figures of *Acer Vloxemi*, a fine Maple discovered by Mr. Jean Van Vloxem in the Caucasus, and heretofore generally believed to be merely a form of *A. Pseudo-Platanus*, although Dr. Masters, in whose garden it has been growing for a number of years, has always considered it distinct from that species. His idea is now confirmed by the character of the inflorescence, which has been produced in Mr. Van Vloxem's garden, and which, instead of being racemose and pendulous, is erect and corymbose, with glabrous filaments. Whether this handsome tree, which is remarkable for its robust and rapid growth and for the silvery whiteness of the under surface of the leaves, is distinct from *A. insigne* of Boissier, is a question which Dr. Masters promises to discuss in connection with the figure of this last species, which is to appear, he tells us, in an early issue of the *Gardeners' Chronicle*. Whether *A. Vloxemi* is a distinct species or not, it is certainly a beautiful and distinct plant from the horticultural point of view, and well worth growing wherever the climate suits it.

Cultural Department.

Stray Notes from the Arnold Arboretum.—VII.

WE are accustomed to think of the fruits of ornamental trees and shrubs as if they belonged to the autumn or to the winter, and do not always remember that some of the most beautiful of them ripen in summer, and so do not always sufficiently consider shrubs from this point of view in studying the composition of our shrubberies. Many shrubs, however, are better worth cultivating for the display of fruit they can make than for the flowers which cover their branches earlier in the year.

The earliest hardy shrub which makes any great show of fruit in this climate is the Mezereum (*Daphne Mezereum*). This is a small plant which belongs to the colder parts of Europe and Asia, and is so hardy that it is able to grow on the borders of the Arctic region itself. The flowers are pink or sometimes white, and they appear (by the middle of April in this climate) in little clusters, which cover the stems formed during the previous summer. One of these plants in flower is a bright and beautiful object, and it is all the more beautiful because the flowers open very early in the season, sometimes before the snow has disappeared and when flowers are scarce, and therefore more valuable than they are a week or two later. But this plant is more beautiful two months later, when the large bright red, lustrous fruit ripens. This quite covers the branches, and makes a fine contrast to the dark green leaves. It is a hardy and beautiful little plant, which has been cultivated in European gardens for three centuries at least, and yet we rarely find it in those of this country. There is no better plant for a small garden, especially for the garden of the man who, like many Americans, is away from home during the summer months and wants his garden attractive before the hot weather drives him to the sea-shore or to the mountains. Now, a plant like *D. Mezereum*, which does its work for the year between the first of April and the first of July, showing all its beauty during these few weeks, is the plant of all others for the spring garden. It is hardy; it flowers every year; it is not very particular about soil or exposure, and it only grows two feet high. These would seem to be qualities which would make a plant popular; and it is remarkable that florists and small nurserymen, who make a business of supplying plants for the door-yards and small gardens of our cities and their suburbs, have not yet got hold of the Mezereum. Perhaps it is because it takes some time to make a plant large enough to sell, as the Mezereum cannot be struck from soft-wood cuttings like Hydrangeas, Spiræas, and other coarse-

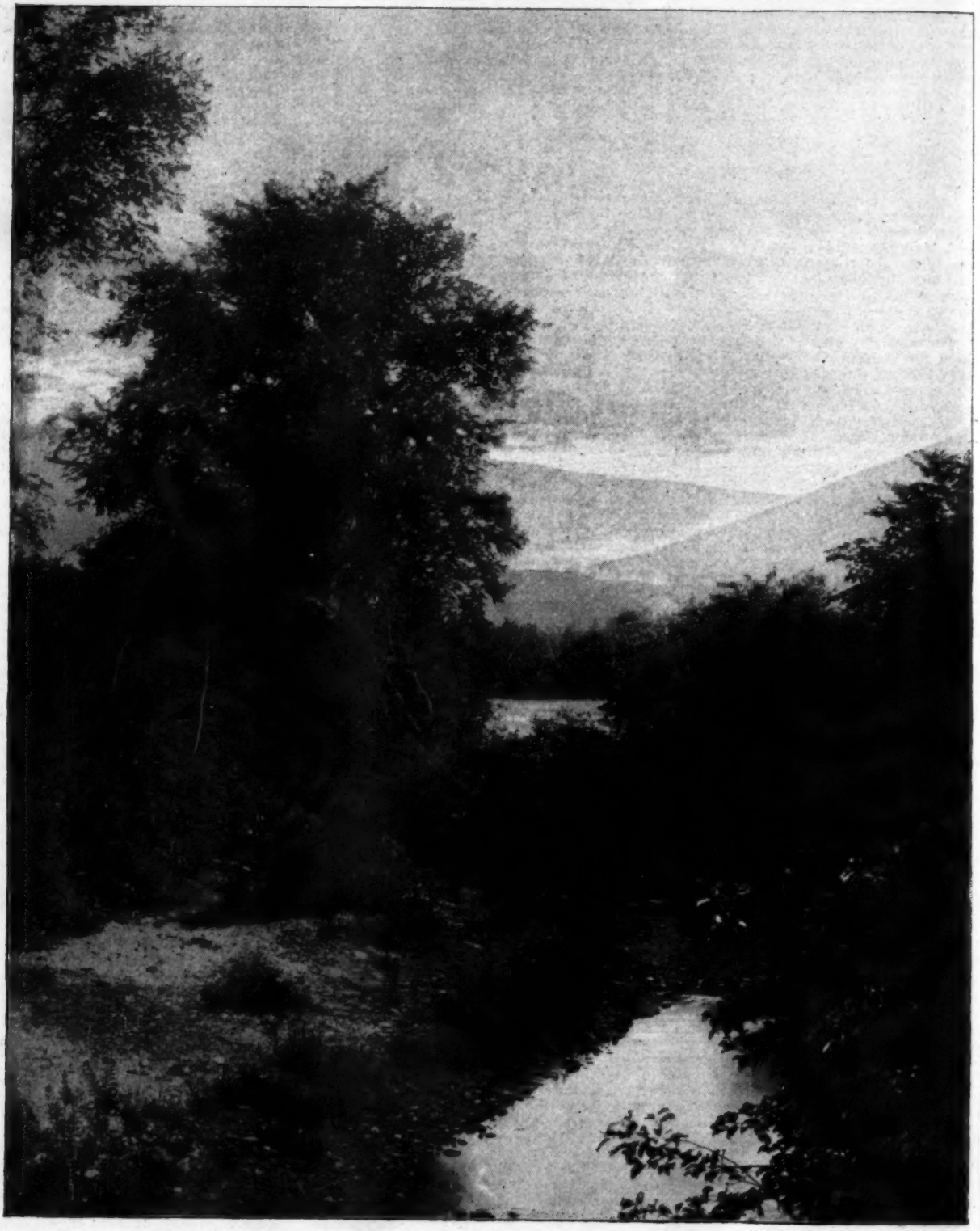

Fig. 61.—A New Hampshire Brook-side.—See page 361.

growing shrubs. Bigness and cheapness are still, unfortunately, the chief factors which influence the choice of the great proportion of American plant-buyers. The popular plant is pretty sure to be the one which will grow quickest to the largest size, and is therefore the most profitable plant to sell.

The florist and the nurseryman set the fashion in planting for nine-tenths of us Americans, and until we instruct ourselves about plants and learn their good and bad points so as to have opinions of our own, we must be satisfied with second-hand knowledge, and go on planting what we are told are the finest novelties which have appeared for years. We can get some idea of a plant by reading about it, or by seeing a picture of it, if it is not one of those pictures used to decorate that branch of the literature of horticulture from which most people draw their inspiration; but the real way to know a plant is to see it growing, and to watch it from month to month and from year to year. This is why arboreta and botanic gardens can be made of popular interest and value, if they are managed with the view of affording information with regard to plants in their horticultural aspects, and why each centre of population in the country should be supplied with a well-equipped establishment of this class. In these establishments people can see plants of all sorts growing, and can learn which ones are best suited to their particular needs.

A summer-fruiting shrub which is beautiful in July is the Japanese *Elæagnus longipes*, of which a figure was published in the first volume of Garden and Forest (499, f. 78). It has now become well known, and a few nurserymen are raising it in considerable quantities. Their confidence seems to be justified, for this is a plant which improves with age, and has not developed yet any disease, want of vigor or special attractions to devouring insects. It bears great crops of fruit which ripens about the middle of July and hangs for some time on the branches. The fruit is brilliant, although, as it is suspended on long stalks under the leaves, it does not make much show from a distance, and the branches have to be turned up with the hand in order to bring it into full view. It is edible, and some people find the sub-acid flavor delicious. Certainly it is as good as a currant, and better than a gooseberry, and with good cultivation and careful selection might develop into something for the table really worth talking about. The leaves, too, are beautiful—very dark above, and silvery white on the lower surface. The flowers, like those of most of the genus, are small, yellow, and not conspicuous. *E. longipes* appears to be entirely worthy of confidence, so far as can be determined by the results of the experiments which have been made with it in the Arboretum, in which it has now been growing and fruiting for a number of years.

The great summer-fruiting shrubs, however, are the so-called Bush Honeysuckles. The most commonly cultivated and best-known of them is the Tartarian Honeysuckle, a very hardy and reliable plant which gardeners in some northern countries, especially in Russia, have worked over for many years, producing many varieties with flowers of various colors, ranging from pure white to dark rosy red. The Tartarian Honeysuckle is one of the best all-round shrubs known in gardens; it is hardy and easily propagated; it grows rapidly, and forms a great bush a dozen feet high sometimes, and as deep through the branches. The flowers are abundant and beautiful, and the fruit, which ripens in July, is brilliant, bright cherry-red on some plants, orange on others, and dark red on others; it is lustrous and almost translucent, and it looks as if it would be delicious to eat. Really it has about as nasty a taste as any fruit can have; but this serves to protect it from the birds, and so it loads the branches for weeks, and makes a brave show. But, fine as it is, there are finer Bush Honeysuckles at this season of the year. One of these is *Lonicera Ruprechtiana*, a very large shrub, or a small tree sometimes, it is said, in its native country, which is the region of the Amour River. The fruit is a third larger at least than that of the Tartarian Honeysuckle, and even more brilliant in color, so that a large plant of this species covered with fruit, and it is always covered at this season of the year, for it is a regular and profuse bloomer, is a remarkable object. Not less beautiful is the Japanese species, *L. Morrowi*, which is as hardy and as desirable in every way. The fruit is as large and as brilliant, but the flowers are rather less showy, although attractive and abundant.

There is a race of Bush Honeysuckles in the Arboretum which came here from a German nurseryman, under the name of *L. bella*. They appear to be hybrids between the Tartarian Honeysuckle and one of the two species just mentioned, although little is known about them. They are handsome plants, but not better or more beautiful than *L. Ruprechtiana*, as regards their flowers or their fruit, and, except as curiosities, are probably hardly worth growing for general decorative purposes.

The Bush Honeysuckles, or some of them (many of the species produce inconspicuous flowers and fruit and come from countries of less severe cold than those which have been mentioned), flourish, as Professor Budd has told the readers of Garden and Forest, in the cold dry climate of the western plains; they are hardy where no other shrub with such beautiful flowers and fruit can grow, and they succeed as well in the mild climate of New England and the middle states as they do in Canada or Nebraska. They are valuable plants for the gardens of the northern parts of this country and of British America, and it is to be regretted that the fine Russian varieties, raised by the gardeners of St. Petersburg, are not within reach of our people.

The Bush Honeysuckles grow so well, and endure so much neglect and bad treatment, that they are admirable plants for public parks, city squares and the grounds of railway stations, and all such places where it is impossible to give to plants the care they receive in good private gardens. Their fruit adds greatly to their value for such purposes, for they serve to bridge over the period of the year when shrubberies are apt to be less attractive than at any other—after the flowers have gone, and before the fruits of autumn ripen and the leaves take on their autumn colors. A plant of one of these Honeysuckles, loaded with its ripe fruit, which enlivens a whole shrubbery for weeks, is always a pleasure and a delight.

Arnold Arboretum. *P. C.*

The Persian Ranunculus.

DO you delight in variety of color? I say advisedly I do not know any class of flowers where the range is so great—from black, at least as black as we get in any flower, to pure white, through every shade of red and yellow, olive-green with yellow ground, edged with darkest markings like a variety of Picotee; some striped like a Carnation, others spotted, veined; in fact, there is hardly a tint of color which exists in flowers that may not be found in a good bed of Ranunculus. Do you admire symmetry of form? What can be more exquisite than the beautifully molded petals of this flower? Some may term it formal, and all double flowers as compared with single ones are liable to this charge; but there is an exquisite finish in the form of these flowers that wins admiration, perhaps even from the rigid botanist who declaims against all these things as monstrosities and violations of the laws of Nature.

One objection to growing the Ranunculus has been their supposed difficulty of cultivation. I used to imagine that the depth at which they were to be planted was to be so exactly gauged (an inch and a quarter) that I had my beds boarded round, and then a board cut to the required depth was forced into the beds, making a drill of that depth, at the bottom of which the tubers were placed, and then covered over; but I have found that this exactness is altogether unnecessary. I endeavor to plant them about this depth, and am convinced that shallow planting is required, but I do it in the ordinary way—draw a drill with a small hoe and then plant.

The plan which I adopt with my beds, which are about thirty-five feet long and four wide, is to prepare them in the autumn. The soil is ordinary light garden soil, and in the month of October, if it is in a fit condition, I dig in a good supply of old hotbed refuse, between three and four barrowfuls to each bed. This is left through the winter, and, if there is frost, it is turned up roughly, so that it may get the full benefit of it, leveling the soil, and, perhaps, destroying grubs, etc. I say perhaps because I am somewhat doubtful as to the effects of frost. About the 12th of February I prepare for planting, but I am not particular as to date. If the weather is favorable before that I do not hesitate to plant, and if it is unfavorable at that time, to defer it for a little longer. [In this country the planting in the latitude of New York could rarely be done before the middle of March.—Ed.] It is essential that the soil should be in good condition at planting time. The bed is then raked down and leveled, the rows are drawn about four inches apart, and, as I have said, from one and a half to two inches in depth. I have previously gone through my boxes, for I do not keep to names, but grow in mixture, and pick out for the principal bed the largest tubers. Allowing for three rows to a foot, and twelve in each row, the bed will take about 1,250. Of course, smaller beds can be made. As the Ranunculus, like most of its family, is fond of water, a dry spring is against them, and in such a case they may be watered thoroughly, once or oftener, if needed. I used to take a good deal of trouble to place an awning on the beds; for some years I have discontinued it, and am quite satisfied to do so for the

future. The flowering season may be a little shortened, but a good deal of trouble is saved, and the beds look better.

The harvesting of the roots is a matter of supreme importance. They must not be taken up before they are ripe, or they will shrink very much, and be feeble next year; nor must they be left too long, which is even more fatal to them, as they then begin to start, and when this is the case the tubers are good for nothing next year; so that should showery weather occur, as it very often does in the early part of July, a good deal of watchfulness is needed to catch the right time for lifting them. They should be placed, after the foliage has been cut off, in a cool, shady place, where they can get all the influence of the air without being exposed to direct sunlight. A cool, open shed is a capital place. They can be laid out thinly, and when they have been thoroughly cleared of all dirt they may be placed in boxes and brought into the house and placed anywhere free from frost.

Some years ago I obtained from Messrs. Ant. Roozen & Son, of Overveen, Holland, a few hundreds of Persian and Scotch (so-called) varieties. They were all named, and have, with some remains of Lightbody's collection, formed the foundation of my present one. I put them into mixture, knowing that I should probably have to weed out a good many, and so the event proved. Neither in these nor in Tulips are growers particular as to correctness of form, and admit among their Ranunculuses many that are not sufficiently double, and which show the black centre much too soon. These I have gradually weeded out, and I can now look on my beds with much satisfaction.

Of late years there has been a race introduced which is called the Giant French Ranunculus. The flowers are much larger than the ordinary Persian varieties, but they are not so double, and have the great defect of showing the eye very soon. They are brilliant in color, but not so varied. They make a good show in the garden, but will not please the critical taste of a connoisseur.—Correspondent of *Journal of Horticulture*, London.

Notes from the Harvard Botanic Garden.

Alströmeria aurantiaca.—Several of the Alströmerias are highly decorative border-plants, and were at one time very popular in gardens, but they have been much neglected of late years. *A. aurantiaca* is one of the best. It is a hardy herbaceous, tuberous-rooted perennial, introduced from Chili in 1831. The erect stems, from three to four feet high, are well clothed with linear-lanceolate, glaucous-green leaves from three to four inches long, and curiously twisted at the base, reversing the normal position of the upper and lower surfaces. This peculiar twisting of the leaves is, however, a feature of all the Alströmerias, and also of the closely allied genus Bomaria. The flowers of *A. aurantiaca*—the two upper divisions of which are deep yellow, with numerous longitudinal lines of dark red, the others of a bright orange color—are about two inches across, and as many as twenty of them appear in the form of a terminal umbel. They last a long time when cut, and the long, straight stems upon which the heads of bloom are borne, render them doubly useful for that purpose. If we except the Lilies, it would be hard to find a plant whose flowers produce a more pleasing effect. But while less striking than many members of this royal race, its floral charms are longer continued, lasting throughout June, July and August, three very severe months on most flowers. The plant likes an open, sunny position and rich sandy soil. Excessive moisture about the roots in winter is dangerous, and therefore it should be planted from six to nine inches deep, but at a considerable elevation above the general level. Mulching with dry litter also tends to ward off superfluous water. Abundant moisture, however, is indispensable during the drought of an American summer, and in dry weather a thorough watering is a daily necessity. It is propagated by dividing the crowns late in autumn, or by sowing the seeds under cover when perfectly ripe. The latter method is much the safest, old established roots being rather uncertain in their behavior after they are transplanted.

Anemone Robinsoniana.—This is perhaps the prettiest of the several varieties of *A. nemorosa*, the Wood Anemone. It was brought prominently before the gardening public some years ago by Mr. William Robinson, editor of *The Garden*, and named in compliment to him. It is a rare plant, growing wild in various parts of England. The blue form of *A. nemorosa*, sometimes found in American woods, resembles it very closely, but the English variety, under the same treatment, bears larger flowers of a deeper color. *A. Robinsoniana* is about six inches in height, the deep sky-blue flowers, an inch and a half in diameter, cresting the compact mass of elegant pale green foliage. The blooms do not last a great length of time when cut, but the plant is very desirable on account of its early and free-flowering qualities. The flowering season proper extends from the latter end of March until the middle of May, and in cold, late seasons the charming blossoms may be seen as late as June and July. There are no difficulties attending the cultivation of this plant provided it is given a dry position, well shaded by trees, and soil in which leaf-mold predominates. These conditions are found on the margins of natural woods composed in greatest part of deciduous trees, and the cultivator of the Wood Anemone, or any of its varieties, who can reproduce these conditions most perfectly will obtain the greatest amount of satisfaction from his plants.

Epilobium angustifolium.—This is a common plant in many parts of the world, including the United States, but is not unworthy of a place in gardens. It has many common names, among them Great Willow Herb, French Willow, Rose Bay and Fire Weed. It occurs most plentifully in newly settled districts, and soon forms a conspicuous feature of the landscape of those woody regions that have been swept by fire; hence the name Fire Weed. The plant attains a height of five feet and spreads rapidly under cultivation, bearing large racemes of bright purple flowers in June and July. These are followed by numerous long seed-pods, containing, with the seeds, a large quantity of fine white silky down, which, when the pods burst in July and August, is scattered about all over the plant, giving it a fluffy appearance. A variety, *E. angustifolium album*, has pure white flowers. Both are eminently floriferous and useful for cutting. They thrive well in any ordinary soil, but should be given abundance of space, as, otherwise, they are liable to smother plants of a less aggressive character. The seeds are easy to raise, and those who have attempted to remove the roots of *E. angustifolium* do not need to be told of their vitality, as every piece an inch in length is almost certain to grow and form a plant.

Lythrum Salicaria.—Few of the European plants which have become naturalized in this country are more desirable than the Purple or Spiked Loosestrife now common in wet meadows, from Nova Scotia to Delaware. In Europe it is usually found on the banks of rivers and ponds, and it is useful for the adornment of artificial pieces of water. It is also a desirable border-plant, thriving luxuriantly in a deep, moist loam. The plant is from three to four feet high, the stems and numerous branches four-sided, well clothed with dark green, oblong leaves, and each terminating with a long spike of dark purple flowers. The flowering season extends throughout June, July and August, and the tall inflorescences have a charming effect when loosely arranged in suitable vases. There are two well-known varieties of this plant; one known as Roseum, with paler flowers than the species, and the other Superbum, in which the flowers are larger. Either one of the varieties is preferable to the type, inasmuch as they flower more freely. All are readily increased by cuttings and by division. *L. Salicaria* has an interest from the fact that Darwin used it, with many other plants, for illustrating the theory of evolution.

Cambridge, Mass. *M. Barker.*

How to have Clean Flower Pots.

HAVING been very much annoyed by the rapid growth of Algæ (Protococcus) on pots in greenhouses, a trouble which necessitates the frequent shifting of plants from foul pots to clean ones, besides attendant scrubbing with soap and sand, I have been lead to try a large number of preparations for the prevention of this fungal growth which, at the same time, would not injure the health of plants. After many experiments I have found that new pots, soaked in ammoniacal solution (United States Department formula), become impregnated with the copper salts, rendering it impossible for the germs of this fungus to obtain a foothold. Experiments with this solution, extending back to February, prove its value, as pots soaked then have resisted the attacks of this fungus and are as clean as when first used, while new pots, used at the same time, without being soaked, are completely covered, and in every case the same results have been obtained, both in the greenhouse at this station and in the houses of one of the leading nurserymen of this place. I am of the opinion that it will be necessary to soak the pots at intervals of at least once a year, which will not be a very serious matter, considering the large saving, both in time and money, which is accomplished by this method.

Almost all nurserymen and florists find that there is a considerable expense connected with the washing of pots, even

when done by boys, but as this solution is quite inexpensive, and pots can be soaked so readily, this cost can be reduced to a trifle. It seems probable that, after this bath has been thoroughly tested and in general use, the manufacturers of pots and other earthenware will offer on the market goods soaked in copper solutions, as they can accomplish the same end cheaper than individuals, thus lessening the expense to the florist or private gardener who takes pride in having his pots clean at all times.

These soaked pots have been used for several classes of plants, Roses, Gloxinias, Primulas and others, and at this writing I can perceive no indications of injury to any of them; in fact, I think the ammonia in the solution is, to a limited extent, a benefit. The formula for this solution is as follows: five ounces of copper carbonate dissolved in three pints of ammonia, twenty-six degrees strength, diluted with fifty gallons of water.

Experiment Station, Geneva, N. Y. *C. E. Hunn.*

Cypripedium Curtisii.

THIS remarkable plant is now tolerably well known to all growers of Orchids both in England and on the Continent, and, no doubt, also in America. It is well worthy of a place in every collection, as it is easily grown, and repays the attention given to it by its large flowers and handsome foliage. Like many other Orchids, it improves under cultivation, both leaves and flowers becoming larger, more substantial, and better colored year after year. In a fine specimen which I recently saw, the broadly cordate upper sepal was large, and had a conspicuous white border surrounding a deep green area, the surface of which is longitudinally striped alternately with dull purple and dark green, and is also decorated near the base with a transverse zone of dull purple. The lower sepal is much smaller, whitish, with pale green stripes. The ligulate petals are slightly bent down, and are more or less recurved or twisted at the pointed apex. Three colors are chiefly noticeable on the surface, namely, dark olive-green at the base, which passes into white or whitish green in the centre, and bright rose beyond this to the apex. The whole is covered densely with blackish purple blotches, which stand out prominently on the middle and apical portion, owing to the delicacy of the ground color. The first thing that strikes one in beholding the flowers of *C. Curtisii* is the enormous size of the lip, that is, in comparison with the other parts of the flower. In front it is of a dull purple-red, with deeper colored veins, becoming pale green behind, while the inflexed lobes of the base are of a soft pinky rose, studded with purple warts, the tips of which sparkle like diamonds in the sunlight. The upper sepal, especially on the back, and the petals on the margins are all very hairy, the large lip even having short stubby hairs arranged round the edge of the orifice as well as on the surface. The leaves are elliptic-oblong, light green, with oblong patches of dark green, presenting a handsome chequered appearance. As a rule, the flowers appear singly on the tops of the dark purple pubescent scapes, but instances have been noticed where two flowers have been produced on one scape. Where there are several plants, flowers may be expected to appear between January and July—some plants flowering earlier than others.

The native country of *C. Curtisii* is Sumatra, where it was discovered on the mountain-ranges, at an elevation of from 3,000 to 4,000 feet, in 1882, by Curtis, one of the collectors of the Messrs. Veitch & Sons, whose name it bears. Plants will thrive if grown in a rough compost of peat and loam, either in well-drained pots or planted out. The winter temperature should not be allowed to fall lower than sixty degrees Fahrenheit, and attention to watering must always be given at this season. In the summer months the atmosphere should be well charged with moisture, which may be accomplished in the usual way of damping the floors and the houses and sides of stages at frequent intervals during the day. Air may also be given liberally during hot weather, when, owing to evaporation, greater quantities of water will naturally be required by the plants.

Isleworth. *J. Weathers.*

Lettuce for Summer and Autumn Use.

DURING the hotter summer and early autumn months, when a fresh, crisp salad is one of the most relishable additions to the breakfast-table we rarely find, either in the private garden or the market, a supply of good lettuce. Yet, wherever the appreciation or demand warrants it, a little extra effort will secure lettuce which is fully equal, and generally superior to that obtainable earlier. The method which we have found successful is the following: Prepare a bed or field of friable well-tilled soil, making it very rich, especially in nitrogenous manures, using very liberal quantities of well-rotted manure and of nitrate of soda. Wet the bed thoroughly and wait until it has dried out, just sufficiently not to pack under pressure, or, in the case of field culture, wait long enough after a rain to secure the same condition, and then sow the seed in drills, two feet apart, running north and south, covering the seed lightly and pressing the soil well over it. Now set along the row, eight feet apart, stakes four to six inches wide, one inch or more thick, and fifteen to eighteen inches long, so that they will project four to six inches above the surface, and on these lay common six-inch fencing boards, tacking them to the stakes with a single wire nail. These will generally shade the rows during the heat of the day sufficiently to secure a stand and a rapid growth. The rows can at least be watered with far less danger of injury than if they were unshaded. When the young plants are two or three inches high, remove the boards, thin out so that there will be from three to ten plants to the yard, according to the age and size when the lettuce is to be used, raise the stakes until they are from eight to ten inches above the surface and replace the boards.

As to the best kinds for summer planting, the European sort, Marvel or Red Besson, and its American representatives, Long Standing Bronze, Shotwell, Brown Head, etc., make a compact plant, deep red in color, with a solid head of thick, rich-flavored, crumpled, yellow leaves of the finest quality, and is one of the best sorts to resist the hot sun.

Deacon, Defiance Summer, New White Russian Summer, if not identical, are very similar, and form solid heads of very thick, rich-flavored leaves—the outer ones a rich green, the inner white, or yellowish white. These are good varieties, especially for those who use oil or butter with lettuce.

Hanson, Henderson's New York, Marblehead, Mammoth Cabbage are all larger and coarser-growing than the others, and the heads are looser, and made of much coarser but exceedingly crisp and tender white leaves, which might be preferred by those who eat lettuce with vinegar and sugar.

Any of the above varieties can be grown so as to be in perfection at any time from July 1st till October 15th, and we think cannot be grown so as to be at their best until about the earlier date; while Tennis Ball, Black Seeded Simpson and some other sorts must be grown so as to mature not later than July 1st, in order to be at their best.

Detroit, Mich. *Will W. Tracy.*

A hardy Indian Azalea.—Some ten or twelve years ago Mr. George C. Woolson imported from Japan some plants which he ordered as *Azalea amœna*, but which proved to be another variety which blossoms very much later, sometimes holding flowers until the middle of July, although its season usually begins soon after the middle of June. It seems in this latitude to be rather less able to withstand the winter than *Azalea amœna*, but this year it has flowered very abundantly. It is a dwarf plant, ranging from twelve to fifteen inches high here, and the flowers are a bright scarlet and as large as those of the typical Indian Azalea. The plant is identified as *Rhododendron Indicum*, var. *obtusum*. It will be a valuable shrub in this latitude and farther south.

Morristown, N. J. *S.*

Hollyhocks.—These favorite old-fashioned flowers have for some time past been at their best, and they are very attractive at the back of a wide border. The Hollyhock disease has done much to discourage growers in this region, where it has prevailed, and therefore success is the more pleasant. We used to have much satisfaction from the named collection of some two dozen varieties, which were mostly Charter's kinds. Some of these Charter Hollyhocks still live, and are well worth growing when they can be obtained. As Hollyhocks come true from seeds, in some sections there would be no difficulty in keeping the varieties year after year. Situated as we are, it is best to obtain fresh seed each year, and start a new lot to secure a good display of stems six to eight feet in height. As perennial plants they are very uncertain in our colder states, and only a part of the crop will survive even the first winter. There are three periods at which seed may be sown with about equal success, the difference being principally in the amount of trouble and space involved. Seed may be sown early in January, and if the plants are grown on without a check they will flower the same year, but the trouble is that a warm greenhouse is indispensable, and so also is plenty of space at a season when space is scarce. Seed may also be sown in March, and the seedlings planted in the open ground in May; they will make strong plants and flower the following year. Plants grown from seed sown in July, or very early in August,

should, when they are large enough, be set out in a bed of rich soil. When cold weather comes the plants should be covered with a few dry leaves and protected by a frame of rough boards. In early spring they may be uncovered and planted in the places where they are to flower. From this method we have had the best results with the least trouble. Hollyhocks like rich soil, and should be watered well in dry weather; strong stakes are necessary to protect them in rough winds. I am not aware that any remedy has been found for the disease, but if there has been, many lovers of these flowers would be glad to know of it.

South Lancaster, Mass. *E. O. Orpet.*

Correspondence.

A Forest Under the Equator.

To the Editor of Garden and Forest:

Sir,—The port of entry to the Amazon Valley is the city of Pará, which stands on the southern bank of the great river, and fears no rival city on the northern bank because that shore is too unhealthy and too difficult of access ever to become inhabited. With never a blighting frost, and with plenty of moisture, for a daily shower is expected to fall throughout the year, it is not strange that every inch of fertile soil under a vertical sun teems with vegetation, so that this little-known city of the south is embowered in a luxuriant forest that sweeps away in every direction as far as the eye can reach, draping the whole land with fadeless green and veiling the face of the continent for 2,000 miles westward to the foot of the Andes.

During the two years in which I lived in Pará many longings for my New England home were alleviated by walks in the narrow forest-paths that terminate the city streets. The landscape is nearly the same at all seasons. Very few of the trees shed all their foliage before the new buds expand, and one leaf at a time falls silently, while others as silently unfold. Few flowers are found blooming freely in the shady recesses of this woodland. Occasionally by the path a solitary scarlet Passion-flower flames like a beacon from the green drapery to which it clings. In partially cleared spaces, or upon the outskirts of the wood, I often saw white Convolvuli, occasionally the purple and white Passion-flower, and also a plant which resembled the scarlet-flowered Canna; the blossom was quite small—perhaps because of the deep shade in which it unfurled its wide green leaves. Many of the trees have small or inconspicuous flowers, but some of the tallest ones open showy clusters of purple or of yellow flowers.

The farther we advance into the forest the less dense becomes the undergrowth, so that one catches more extended glimpses of the vast wilderness that sweeps away on either hand. But it is far from easy to make one's way from one path to another as the tree-trunks are everywhere linked and bound together by gigantic vines or sipos, and you begin to understand what is meant by climbing trees. Their flexible stems twine and creep in every direction or fall in loops strong enough to make a swing for two or three adults. Their leaves are mostly borne when the leaning stems have at last wound their way up to the sunlight that sifts into this dense canopy of foliage which is supported by the columnar trunks of the trees. Underneath this high green firmament the bare, brown, vine-like stems and dark tree-trunks are here and there interspersed with long brown threads that dangle over the pathway and sway with the passing breeze. These woody lianas, suspended from the branches above, are not the ends of vines that have lost hold upon their supports, but they are the air-roots of epiphytal plants that are growing on the interlocking boughs. Some hang like scattered threads of fringe, other strands are clustered, but all are stretching and reaching toward the bosom of the earth, and when they touch the ground they quickly strike their rootlets into the moist soil, no doubt giving new lease of life to the plants lodged on the tree above.

The green leaves of the enormous air-plants or parasites give tone to the grays and browns of the bare trunks, and to the vine-stalks that appear almost sombre in the semi-twilight of the woods. It is a marvelous sight to see wide, flag-like leaves growing luxuriantly in massive clusters at a dizzy height, upon the side of a gigantic tree-trunk. In some strange way many of them have been supplied with a big lump of black soil. One might imagine some grotesque gardener had uptorn the huge root from the ground, and, in some magic way, flung it, with the soil adhering to it, "right side up with care," against its perpendicular perch. Too rank a growth, or some mischievous flying missile may dislodge one, but many are left to cling among Orchids or Ferns, whose home is high on the bark of the tree.

Except in the most moist and densely shaded parts of the forest, the ground is thickly covered with Lycopodiums. They grow a foot or more in height and then bend over, to take root again at their tips, like Walking Ferns. This foot-deep, dark green, mossy cushion is, in itself, worth all the trouble it takes to visit it. In the swampy localities we find Caladiums that are especially graceful in style of growth, and have very brilliant markings. Another plant, whose thick, fleshy and heart-shaped leaves resemble the foliage of the Caladium is the Pothos. These climbing shrubs twine their cord-like stems around the trunks of the trees, here and there emitting false roots, by means of which they attach themselves to the bark of their appropriated support, and clamber on toward the light that filters through interlacing boughs overhead.

An exceedingly interesting study is found in the almost endless variety in the foliage. There is every conceivable form between the fine pinnate leaves of the many Mimosas and the sword-shaped leaves of *Urania Amazonica*, wild Banana, which measure eight feet in length by one in breadth, and stand upright from the top of a five or six foot stem. No words are adequate to express one's admiration for a single one of these stately, colossal trees, and a chill of awe comes with the effort to estimate the number of these giants in the vast forest whose majestic and imposing beauty is the slow and steady growth of unrecorded ages.

Lordsburg, Cal. *Mrs. W. F. Wheeler.*

Community Gardens.

To the Editor of Garden and Forest:

Sir,—The pleasure of gardening would be increased if we were not confined by fashion and custom to a limited number of plants, so that gardens are repeated over and over again. And to make the repetition more marked, not only are the same plants used, but many of them are trimmed and pruned to the same artificial forms. The Rose is indispensable, but its season of bloom is short, and the half-dozen larger Pinks in general cultivation are fine and pleasing. These, with perhaps a dozen other plants, form the staple garden material over considerable sections of the country.

If instead of confining ourselves to a few stock plants, beautiful as they are, there were added to these some of the really attractive flowers which can readily be bought, but which are seldom seen, the garden would have a continuation of bloom and verdure throughout the entire season. There is unlimited variety in the graceful natural effect of shrubs and trees, but the Maple, the Willow and the Poplar are not allowed to assume their natural grace, but are often pollarded or pruned into formality and stiffness, while evergreens are fashioned into even more grotesque forms.

In order to prevent this endless repetition of gardens, each fashioned after the same model, I have a suggestion to offer which may be too fanciful for practical use, but which may perhaps widen the scope of some one's thought or encourage some one to larger enterprise in gardening. What an endless variety of things, little and big, might be grown if a community would organize to grow them. My neighbor A could purchase, plant and enjoy a hundred Sedums, more or less; B could fill his garden with Cactuses; and the Misses C. could cover their two or three hundred feet of rock-margined border with such pretty low plants as the mountain, alpine and spiny Alyssums, the Egyptian and golden Yarrows, the three or four Æthionemas, as many Androsaces, Arabises and Aubrietias, the silvery prostrate and dense Antennarias, *A. dioica* and *A. tomentosa*, the gray-foliaged and white-flowered Cerastiums, the creeping and tufted Astragaluses, the rosy and white-headed Armerias, and even such mild, free and lightly spreading little specimens as our own native *Hosackia Purshiana*, whose claims to garden space I am, I imagine, the first to advocate.

Behind all the above edging species, our friends, the Misses C., could set the more brilliant Figworts, the taller and shorter Mimuluses, Pentstemons, Alonsoas, Antirrhinums, Calceolarias, Nemesias, Linarias, Lophospermums, Digitalises, etc. One entire garden could be filled with the twenty or thirty species of cultivated Oxalis, the advertised twenty or thirty species and varieties of Lobelia and Veronica, with Gypsophilas, Galiums and Statices added to mystify and unite the whole.

The Crucifers, the Pinks, the Pea tribe, the Composites, the succulent Mesembryanthemums, the Night-shades, the bulbous plants would each supply a garden-enclosure with candidates sufficient to fill it.

This plan would afford great variety, with harmony in each individual garden, together with endless diversity, as I have indicated above, in each group of gardens included within the bounds of a civil parish, township or county. Thus arranged, each house-lot, as will be seen, would hold out a continuous invitation to the holders of a thousand other house-lots to come in, examine and admire. Each citizen, with kindest intent, would have large interest in the enclosures of all his neighbors, far and near; consequently, calls and inspections would ever be in order and never completed, as it would take more than one season—more than two, perhaps—to exhaust the green treasures of a single village only.

A township-wide garden, of which each lot-holder would be the owner of a fragment, I offer as a new departure for American gardening.

Santa Clara. *L.*

Recent Publications.

Last year Professor Roberts, of Cornell University, published a bulletin to show how much loss of fertilizing matter occurred when manure was permitted to lie exposed to the weather for considerable periods of time. The trials which were then made have been repeated, with some variations, and on a larger scale, and Bulletin 17, from the Cornell Experiment Station, is devoted to the same subject. In the trial recorded a pile of two tons of horse-manure and cut straw was accumulated in the latter part of April, and analysis was then made of the mass. This remained exposed until the middle of September, when it was carefully scraped up, weighed and analyzed by samples. The season was a wet one, and a great deal of loss occurred. The 4,000 pounds of original gross weight had shrunk to 1,730 pounds, and, although there was an increase in the percentage of phosphoric acid, and but a slight diminution in the percentage of nitrogen, the total loss, owing to the general shrinkage, was very great; that is, of the nitrogen there was a loss of sixty per cent., of phosphoric acid a loss of forty-seven per cent., and of potash a loss of seventy-six per cent. Estimating the value of the fertilizing ingredients at current prices, a ton of the original compost was worth $2.80, while the value of what that ton had dwindled to at the close of the experiment was only $1.06, or a loss of 62 per cent. in the fertilizing power of the manure. The loss in this case was more serious than it was last year, owing to the fact, perhaps, that the heap was larger, and, as it contained some straw, there was a greater degree of heating, or what is known to farmers as firefanging.

A similar experiment was made on a pile of cow-manure, amounting to five tons. The total shrinkage in gross weight was, in this case, about one-half. The loss of nitrogen was forty-one per cent., of phosphoric acid nineteen per cent., and of potash eight per cent., and the value of the manure was depreciated to the amount of about one-third. From this it appears that the waste was only one-half as much as in the case of the horse-manure. One reason for this is, that the fermentation in this case was not sufficiently rapid to cause firefanging.

From these tests Professor Roberts reaches the following conclusion: "It seems safe to say that under the ordinary conditions of piling and exposure the loss of fertilizing material during the course of the summer is not likely to be much below fifty per cent. of the value of the manure." Of course the moral of this is to use great care in preserving such fertilizing material for farm or garden. It is too often the case that farm-yard manures are piled under the eaves of outbuildings or upon a steep hill-side by the borders of a running brook, and this fact is made graphically clear in the bulletin by some pictures from actual photographs of country farm-yards. Professor Roberts recommends cheap buildings or covered yards which will protect the manure from leaching.

Increased interest would have been given to this bulletin if Professor Roberts had explained where the lost fertilizing material had gone. The potash cannot evaporate, so that the potash and phosphoric acid must have been carried away in the drainage. It would seem, therefore, that the best way to save these elements would be to spread the manure at once on the surface of the ground where it was needed, so that the soluble salts might be washed into the soil and held there. The most expensive ingredient, however, is the nitrogen, and in the course of fermentation this can pass into the air as ammonia or as a free gas. It would be interesting to know how much of it escaped in the drainage and how much was dissipated in the air. Fermentation to some extent would go on in the manure even under cover, and in some cases this fermentation adds value to the manure. If Professor Roberts continues his experiments he could give cultivators some useful information by ascertaining for them how much in actual weight a ton of manure would lose if kept under cover or in a pit, and what portion of the waste is material which is valuable plant-food. The proper care and the most effective application of manures may be considered the basis of all good agricultural practice, and our experiment stations can do no better work than by making careful researches in this direction.

Periodical Literature.

In the August number of *The Forum* Ex-Governor Sheldon writes on the Profits of Fruit-culture in California, naming as the fruits which are successfully grown in that state the apple, the apricot, the peach, the pear, the plum, the prune, the nectarine, the cherry, the fig, the olive, the guava, the loquat, the orange, the lemon, the lime, grapes for the table, for raisins and for wines, the English walnut and the almond. The richness of some of the valleys, where the fertility has been washed down from the mountains for ages, is so great, and the consequent production of all kinds of crops is so abundant, that many Californians have been led to believe that this fertility cannot be exhausted. This belief has led to imperfect cultivation and the continuation of successive crops in some places until production has been materially reduced. Vineyards have borne fruit for a hundred years in some cases without any fertilization. The orchards of deciduous fruit are rarely enriched, and Orange-groves have not been fertilized until within ten or fifteen years. Of course, in order to secure future crops, some return must be made to the soil, and cultivators are now beginning to study methods of cultivation and to make use of both home-made and commercial fertilizers with excellent results.

Perhaps the most instructive part of the article is not the general statement of the large production, but the specific examples cited of the crops which have been produced in different parts of the state. For example, 250 acres of wine Grape-vines in Los Angeles County have for several years netted their owner $100 an acre. Raisins yield a profit in four counties of from $150 to $400 an acre when the vines are in full bearing. Walnut-orchards yield from $200 to $400 per acre when the trees are twenty years old. Seventy-two Fig-trees, planted at the rate of 108 to the acre, have netted the grower $600 a year for four years past, and the same grower has received $150 for the lemons grown on one-third of an acre, although they were not cured, but sold to local dealers. The fruit from thirty-eight acres of Peaches, Apricots and Prunes in Pasadena was sold for $9,294, and the cost of production was $1,000, and in the same place the peaches from one and a half acres sold for $500 on the trees. In San Diego County the prunes from five and a half acres brought $2,600, and the cost of production and preparation for market was $300. From sixteen acres of Apricots a grower in Azusa received $7,300 net. One acre of Orange-trees in South Pasadena produced in the fourth year after bearing $350, with a cost of production of $36. Last year a grower in Alhambra raised on eight acres 7,000 boxes of oranges, which were sold at $1.35 a box, while trees planted at the rate of 120 to the acre yield at the rate of $4 a tree. In Riverside, the most celebrated place for orange production in the state, the receipts have been as high as $1,200 to the acre, and $400 and upward are not uncommon returns.

These cases exaggerate general results when the production of all the orchards and vineyards of the state are taken into account, for this includes those which have suffered from neglect and unintelligent management. If these figures are reduced one-half they will still be above the general average production, and then it will be seen that the profits from fruit-culture in California exceed anything that has been achieved elsewhere in the country in horticultural or agricultural production.

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should, when they are large enough, be set out in a bed of rich soil. When cold weather comes the plants should be covered with a few dry leaves and protected by a frame of rough boards. In early spring they may be uncovered and planted in the places where they are to flower. From this method we have had the best results with the least trouble. Hollyhocks like rich soil, and should be watered well in dry weather; strong stakes are necessary to protect them in rough winds. I am not aware that any remedy has been found for the disease, but if there has been, many lovers of these flowers would be glad to know of it.

South Lancaster, Mass. *E. O. Orpet.*

Correspondence.

A Forest Under the Equator.

To the Editor of Garden and Forest:

Sir,—The port of entry to the Amazon Valley is the city of Pará, which stands on the southern bank of the great river, and fears no rival city on the northern bank because that shore is too unhealthy and too difficult of access ever to become inhabited. With never a blighting frost, and with plenty of moisture, for a daily shower is expected to fall throughout the year, it is not strange that every inch of fertile soil under a vertical sun teems with vegetation, so that this little-known city of the south is embowered in a luxuriant forest that sweeps away in every direction as far as the eye can reach, draping the whole land with fadeless green and veiling the face of the continent for 2,000 miles westward to the foot of the Andes.

During the two years in which I lived in Pará many longings for my New England home were alleviated by walks in the narrow forest-paths that terminate the city streets. The landscape is nearly the same at all seasons. Very few of the trees shed all their foliage before the new buds expand, and one leaf at a time falls silently, while others as silently unfold. Few flowers are found blooming freely in the shady recesses of this woodland. Occasionally by the path a solitary scarlet Passion-flower flames like a beacon from the green drapery to which it clings. In partially cleared spaces, or upon the outskirts of the wood, I often saw white Convolvuli, occasionally the purple and white Passion-flower, and also a plant which resembled the scarlet-flowered Canna; the blossom was quite small—perhaps because of the deep shade in which it unfurled its wide green leaves. Many of the trees have small or inconspicuous flowers, but some of the tallest ones open showy clusters of purple or of yellow flowers.

The farther we advance into the forest the less dense becomes the undergrowth, so that one catches more extended glimpses of the vast wilderness that sweeps away on either hand. But it is far from easy to make one's way from one path to another as the tree-trunks are everywhere linked and bound together by gigantic vines or sipos, and you begin to understand what is meant by climbing trees. Their flexible stems twine and creep in every direction or fall in loops strong enough to make a swing for two or three adults. Their leaves are mostly borne when the leaning stems have at last wound their way up to the sunlight that sifts into this dense canopy of foliage which is supported by the columnar trunks of the trees. Underneath this high green firmament the bare, brown, vine-like stems and dark tree-trunks are here and there interspersed with long brown threads that dangle over the pathway and sway with the passing breeze. These woody lianas, suspended from the branches above, are not the ends of vines that have lost hold upon their supports, but they are the air-roots of epiphytal plants that are growing on the interlocking boughs. Some hang like scattered threads of fringe, other strands are clustered, but all are stretching and reaching toward the bosom of the earth, and when they touch the ground they quickly strike their rootlets into the moist soil, no doubt giving new lease of life to the plants lodged on the tree above.

The green leaves of the enormous air-plants or parasites give tone to the grays and browns of the bare trunks, and to the vine-stalks that appear almost sombre in the semi-twilight of the woods. It is a marvelous sight to see wide, flag-like leaves growing luxuriantly in massive clusters at a dizzy height, upon the side of a gigantic tree-trunk. In some strange way many of them have been supplied with a big lump of black soil. One might imagine some grotesque gardener had uptorn the huge root from the ground, and, in some magic way, flung it, with the soil adhering to it, "right side up with care," against its perpendicular perch. Too rank a growth, or some mischievous flying missile may dislodge one, but many are left to cling among Orchids or Ferns, whose home is high on the bark of the tree.

Except in the most moist and densely shaded parts of the forest, the ground is thickly covered with Lycopodiums. They grow a foot or more in height and then bend over, to take root again at their tips, like Walking Ferns. This foot-deep, dark green, mossy cushion is, in itself, worth all the trouble it takes to visit it. In the swampy localities we find Caladiums that are especially graceful in style of growth, and have very brilliant markings. Another plant, whose thick, fleshy and heart-shaped leaves resemble the foliage of the Caladium is the Pothos. These climbing shrubs twine their cord-like stems around the trunks of the trees, here and there emitting false roots, by means of which they attach themselves to the bark of their appropriated support, and clamber on toward the light that filters through interlacing boughs overhead.

An exceedingly interesting study is found in the almost endless variety in the foliage. There is every conceivable form between the fine pinnate leaves of the many Mimosas and the sword-shaped leaves of *Urania Amazonica*, wild Banana, which measure eight feet in length by one in breadth, and stand upright from the top of a five or six foot stem. No words are adequate to express one's admiration for a single one of these stately, colossal trees, and a chill of awe comes with the effort to estimate the number of these giants in the vast forest whose majestic and imposing beauty is the slow and steady growth of unrecorded ages.

Lordsburg, Cal. *Mrs. W. F. Wheeler.*

Community Gardens.

To the Editor of Garden and Forest:

Sir,—The pleasure of gardening would be increased if we were not confined by fashion and custom to a limited number of plants, so that gardens are repeated over and over again. And to make the repetition more marked, not only are the same plants used, but many of them are trimmed and pruned to the same artificial forms. The Rose is indispensable, but its season of bloom is short, and the half-dozen larger Pinks in general cultivation are fine and pleasing. These, with perhaps a dozen other plants, form the staple garden material over considerable sections of the country.

If instead of confining ourselves to a few stock plants, beautiful as they are, there were added to these some of the really attractive flowers which can readily be bought, but which are seldom seen, the garden would have a continuation of bloom and verdure throughout the entire season. There is unlimited variety in the graceful natural effect of shrubs and trees, but the Maple, the Willow and the Poplar are not allowed to assume their natural grace, but are often pollarded or pruned into formality and stiffness, while evergreens are fashioned into even more grotesque forms.

In order to prevent this endless repetition of gardens, each fashioned after the same model, I have a suggestion to offer which may be too fanciful for practical use, but which may perhaps widen the scope of some one's thought or encourage some one to larger enterprise in gardening. What an endless variety of things, little and big, might be grown if a community would organize to grow them. My neighbor A could purchase, plant and enjoy a hundred Sedums, more or less; B could fill his garden with Cactuses; and the Misses C. could cover their two or three hundred feet of rock-margined border with such pretty low plants as the mountain, alpine and spiny Alyssums, the Egyptian and golden Yarrows, the three or four Æthionemas, as many Androsaces, Arabises and Aubrietias, the silvery prostrate and dense Antennarias, *A. dioica* and *A. tomentosa*, the gray-foliaged and white-flowered Cerastiums, the creeping and tufted Astragaluses, the rosy and white-headed Armerias, and even such mild, free and lightly spreading little specimens as our own native *Hosackia Purshiana*, whose claims to garden space I am, I imagine, the first to advocate.

Behind all the above edging species, our friends, the Misses C., could set the more brilliant Figworts, the taller and shorter Mimuluses, Pentstemons, Alonsoas, Antirrhinums, Calceolarias, Nemesias, Linarias, Lophospermums, Digitalises, etc. One entire garden could be filled with the twenty or thirty species of cultivated Oxalis, the advertised twenty or thirty species and varieties of Lobelia and Veronica, with Gypsophilas, Galiums and Statices added to mystify and unite the whole.

The Crucifers, the Pinks, the Pea tribe, the Composites, the succulent Mesembryanthemums, the Night-shades, the bulbous plants would each supply a garden-enclosure with candidates sufficient to fill it.

This plan would afford great variety, with harmony in each individual garden, together with endless diversity, as I have indicated above, in each group of gardens included within the bounds of a civil parish, township or county. Thus arranged, each house-lot, as will be seen, would hold out a continuous invitation to the holders of a thousand other house-lots to come in, examine and admire. Each citizen, with kindest intent, would have large interest in the enclosures of all his neighbors, far and near; consequently, calls and inspections would ever be in order and never completed, as it would take more than one season—more than two, perhaps—to exhaust the green treasures of a single village only.

A township-wide garden, of which each lot-holder would be the owner of a fragment, I offer as a new departure for American gardening.

Santa Clara. *L.*

Recent Publications.

Last year Professor Roberts, of Cornell University, published a bulletin to show how much loss of fertilizing matter occurred when manure was permitted to lie exposed to the weather for considerable periods of time. The trials which were then made have been repeated, with some variations, and on a larger scale, and Bulletin 17, from the Cornell Experiment Station, is devoted to the same subject. In the trial recorded a pile of two tons of horse-manure and cut straw was accumulated in the latter part of April, and analysis was then made of the mass. This remained exposed until the middle of September, when it was carefully scraped up, weighed and analyzed by samples. The season was a wet one, and a great deal of loss occurred. The 4,000 pounds of original gross weight had shrunk to 1,730 pounds, and, although there was an increase in the percentage of phosphoric acid, and but a slight diminution in the percentage of nitrogen, the total loss, owing to the general shrinkage, was very great; that is, of the nitrogen there was a loss of sixty per cent., of phosphoric acid a loss of forty-seven per cent., and of potash a loss of seventy-six per cent. Estimating the value of the fertilizing ingredients at current prices, a ton of the original compost was worth $2.80, while the value of what that ton had dwindled to at the close of the experiment was only $1.06, or a loss of 62 per cent. in the fertilizing power of the manure. The loss in this case was more serious than it was last year, owing to the fact, perhaps, that the heap was larger, and, as it contained some straw, there was a greater degree of heating, or what is known to farmers as firefanging.

A similar experiment was made on a pile of cow-manure, amounting to five tons. The total shrinkage in gross weight was, in this case, about one-half. The loss of nitrogen was forty-one per cent., of phosphoric acid nineteen per cent., and of potash eight per cent., and the value of the manure was depreciated to the amount of about one-third. From this it appears that the waste was only one-half as much as in the case of the horse-manure. One reason for this is, that the fermentation in this case was not sufficiently rapid to cause firefanging.

From these tests Professor Roberts reaches the following conclusion: "It seems safe to say that under the ordinary conditions of piling and exposure the loss of fertilizing material during the course of the summer is not likely to be much below fifty per cent. of the value of the manure." Of course the moral of this is to use great care in preserving such fertilizing material for farm or garden. It is too often the case that farmyard manures are piled under the eaves of outbuildings or upon a steep hill-side by the borders of a running brook, and this fact is made graphically clear in the bulletin by some pictures from actual photographs of country farm-yards. Professor Roberts recommends cheap buildings or covered yards which will protect the manure from leaching.

Increased interest would have been given to this bulletin if Professor Roberts had explained where the lost fertilizing material had gone. The potash cannot evaporate, so that the potash and phosphoric acid must have been carried away in the drainage. It would seem, therefore, that the best way to save these elements would be to spread the manure at once on the surface of the ground where it was needed, so that the soluble salts might be washed into the soil and held there. The most expensive ingredient, however, is the nitrogen, and in the course of fermentation this can pass into the air as ammonia or as a free gas. It would be interesting to know how much of it escaped in the drainage and how much was dissipated in the air. Fermentation to some extent would go on in the manure even under cover, and in some cases this fermentation adds value to the manure. If Professor Roberts continues his experiments he could give cultivators some useful information by ascertaining for them how much in actual weight a ton of manure would lose if kept under cover or in a pit, and what portion of the waste is material which is valuable plant-food. The proper care and the most effective application of manures may be considered the basis of all good agricultural practice, and our experiment stations can do no better work than by making careful researches in this direction.

Periodical Literature.

In the August number of *The Forum* Ex-Governor Sheldon writes on the Profits of Fruit-culture in California, naming as the fruits which are successfully grown in that state the apple, the apricot, the peach, the pear, the plum, the prune, the nectarine, the cherry, the fig, the olive, the guava, the loquat, the orange, the lemon, the lime, grapes for the table, for raisins and for wines, the English walnut and the almond. The richness of some of the valleys, where the fertility has been washed down from the mountains for ages, is so great, and the consequent production of all kinds of crops is so abundant, that many Californians have been led to believe that this fertility cannot be exhausted. This belief has led to imperfect cultivation and the continuation of successive crops in some places until production has been materially reduced. Vineyards have borne fruit for a hundred years in some cases without any fertilization. The orchards of deciduous fruit are rarely enriched, and Orange-groves have not been fertilized until within ten or fifteen years. Of course, in order to secure future crops, some return must be made to the soil, and cultivators are now beginning to study methods of cultivation and to make use of both home-made and commercial fertilizers with excellent results.

Perhaps the most instructive part of the article is not the general statement of the large production, but the specific examples cited of the crops which have been produced in different parts of the state. For example, 250 acres of wine Grapevines in Los Angeles County have for several years netted their owner $100 an acre. Raisins yield a profit in four counties of from $150 to $400 an acre when the vines are in full bearing. Walnut-orchards yield from $200 to $400 per acre when the trees are twenty years old. Seventy-two Fig-trees, planted at the rate of 108 to the acre, have netted the grower $600 a year for four years past, and the same grower has received $150 for the lemons grown on one-third of an acre, although they were not cured, but sold to local dealers. The fruit from thirty-eight acres of Peaches, Apricots and Prunes in Pasadena was sold for $9,294, and the cost of production was $1,000, and in the same place the peaches from one and a half acres sold for $500 on the trees. In San Diego County the prunes from five and a half acres brought $2,600, and the cost of production and preparation for market was $300. From sixteen acres of Apricots a grower in Azusa received $7,300 net. One acre of Orange-trees in South Pasadena produced in the fourth year after bearing $350, with a cost of production of $36. Last year a grower in Alhambra raised on eight acres 7,000 boxes of oranges, which were sold at $1.35 a box, while trees planted at the rate of 120 to the acre yield at the rate of $4 a tree. In Riverside, the most celebrated place for orange production in the state, the receipts have been as high as $1,200 to the acre, and $400 and upward are not uncommon returns.

These cases exaggerate general results when the production of all the orchards and vineyards of the state are taken into account, for this includes those which have suffered from neglect and unintelligent management. If these figures are reduced one-half they will still be above the general average production, and then it will be seen that the profits from fruit-culture in California exceed anything that has been achieved elsewhere in the country in horticultural or agricultural production.

The great increase of fruit-production within the last few years has raised the question whether there is not danger of over-production in the early future to such an extent that reduced prices will leave no profits. In proportion to the value of the land and expense of production these profits have been enormous, and prices might be largely reduced before the fruit-industry would cease to be remunerative. But production is still far below the demand. Peaches, for example, are popular all over the country, while the areas where they have been successfully grown are not increasing in the east. Prunes are raised in several parts of California, and yet the state itself imports them largely. Apricots, figs, raisins, walnuts and olives are only grown in a few places except in the southern half of California, and the wine-grape is cultivated in but a few and restricted districts outside of the state. The orange crop

of Florida is practically out of the way before the California fruit is ready for market, and the orange season in California will probably be prolonged in future, since the growers are planting Valencia Oranges, which do not ripen until July. The Lemon is more sensitive to frost than the Orange, therefore it can be grown with less difficulty in California than in Florida.

Beyond question the production of fruit in California will increase out of proportion to the increase of population, but, meantime, fruit is becoming more and more a general necessity, and abundance stimulates efforts to find new markets and extend trade. Millions of people in the United States only occasionally see oranges, and many others do not use fruit as a regular article of food, and since Americans are the greatest consumers in the world, producers, dealers and transporters will exert themselves to place fruits within the reach of all. Probably prices will be reduced in future, but orchards and vineyards will then have reached full-bearing condition, and their yield will be much greater, without corresponding increase in cost of production, and transportation can be materially reduced as tonnage increases. On the whole, Governor Sheldon thinks that, although Californians have large ideas on the subject of profits, and what, in other countries, would be esteemed as princely they are likely to look upon as moderate, and, perhaps, unsatisfactory, nevertheless their ideas can be considerably modified, and prices can be materially reduced and still leave a satisfactory margin of profit. When fruit-culture does become unremunerative it will be time to discourage it, but it is not probable that this period will arrive within the lifetime of the present generation.

Notes.

Elæagnus longipes is proving itself one of the shrubs which thrive well near the sea.

At the imperial Chrysanthemum festivals in Japan one may see single plants bearing from 200 to 400 blossoms each, which are placed in isolated positions of honor and protected by silken tents.

Dr. Dieck recently announced the blooming in his arboretum at Zoeschen, in Germany, of *Robinia Neo-Mexicana* with red flowers. It withstands a cold of twenty-four degrees Reaumur, and "otherwise resembles the blue-green small-leaved form of Robinia Pseudacacia."

A correspondent of the *New York Tribune*, writing recently from Paris, says that it is estimated that the sale of Lilies of the Valley in that city annually amounts to $160,000, vast quantities of the flowers being forced for the winter season as well as brought in from the country in spring.

A writer in the New Bedford *Standard* recently suggested that the Massachusetts Society for the Preservation of Natural Scenery might well acquire that extremity of the Island of Martha's Vineyard which is known as Gay Head, from the brilliant colors of the stratified clay of which this promontory is composed, and which is now threatened with destruction by those who are carrying away its clays and who propose to work its lignite beds.

A favorite sweet in Japan is *midzu ame*, or Millet-honey, made from rice or millet which has been soaked, steamed, mixed with warm water and barley-malt, and left to stand a few hours, when a clear yellow liquid is drawn off which can be boiled down to a thick syrup or paste. This paste street-venders blow into odd forms with a pipe for the delectation of children, and it is also made into fanciful flower-shapes, which are used to decorate the dinner-table, even in the emperor's palace.

Last year we noted the fact that a species of Begonia with tuberous roots, known as *B. Baumanni*, had been collected in South America, with flowers which were agreeably fragrant, and it was suggested that this might enable hybridizers to produce a cross which would have perfume and thus give the final charm to these beautiful flowers. We are not aware that any success in this direction has as yet been achieved, but Mr. Thomas Griffin, who has some 20,000 seedlings of tuberous Begonias growing near Westbury, Long Island, claims that one of his plants bears distinctly fragrant flowers.

The Humboldt *Times* having stated that California Redwood "comes nearer being fire-proof than almost any other material of which buildings are constructed," the *Commercial News*, of San Francisco, replies: "The kindling wood sold by the retail coal and wood dealers of this city is redwood; it is hard to get anything else from them. This ought to prove that the wood is inflammable. That redwood absorbs water like a sponge and that it is free from the resinous quality common to other soft woods enables it to resist fire better than pitch-pine, and once ablaze the flames are more easily extinguished, from the fact that water soaks into the wood. These qualities make redwood valuable as a building material, but it is absurd to speak of the wood as fire-proof."

The Star, of Wilmington, North Carolina, cites the example of Mr. W. H. Dunn, of Newbern, as one who believes in an intensive system of agriculture. He bought sixty acres of land in 1881, paying for it $50 an acre. He values it now at $1,000 an acre, and it has netted, this year, more than twenty per cent. on this valuation. His profits, above all expenses, have been $11,500. He raises everything for which there is a demand in southern markets, but relies mainly on the Irish Potato, with which he finds no danger of overstocking the market. He insists that that man who understands trucking, and knows what to raise, cannot fail to prosper.

Probably the earliest reference to the cultivation of plants under glass occurs in the writings of Columella. He tells us that the Emperor Tiberius, being in ill health, was ordered to eat cucumbers every day. The Roman gardeners, therefore, cultivated them in frames filled with fermenting manure, exposed to the sun at the foot of a wall, mounted on wheels, so that they could be moved about at will, and covered with pieces of talc to protect the vegetables agaist frost and cold. "Thanks to this invention," says Columella, "Tiberius was supplied with cucumbers at nearly every season of the year." Seneca, however, distinctly tells us that Roman hot-houses were heated by artificial means. "Do not those," he protests, "live contrary to nature who require Roses in winter, and who, by the use of hot water and the application of heat, compel the Lily to blossom in winter instead of in the spring?"

The New York *Journal of Commerce* relates this incident to prove that good roads may be a profitable investment: A wealthy prospector, who was looking for a rural home in which to give a safe and pleasant summer outing to a large family of children, returned from a tour of inspection and handed the maps back to the agent who had instigated the quest. When asked about the prospect of a sale he shook his head with a very decided negative. The agent was confounded; would none of the places suit? There was no malaria; there had never been a case of typhus; mosquitoes were unknown; the springs of water were abundant and delicious; the woods waved their leafy boughs in every landscape; the air in each quarter bore on its wings the fragrance of a thousand flowers; what could be the objection? The answer was short and sharp: "There are no drives; I do not own a carriage that would endure for one season on those terrific roads." An unkept highway is worse than the plague to deter investors in rural homes.

A comprehensive study of the influence of forests on the daily variation of air-temperature has been recently made by Professor Müttrich (*Nature*, May 21st), the data being from stations in Germany and Austria. Inter alia, this influence is greater in May to September or October than in the other months. In Pine and Fir woods it rises gradually from January to a maximum in August or September, then falls more quickly to a minimum in December; but in Beech-woods a minimum occurs in April, then there is a quick rise, till the maximum is reached in July. The daily variation itself is greatest in May or June, both in forest and open country. The influence of the forest is to lower the maxima and raise the minima, and the former influence is in most months greater than the latter; in December and January, and occasionally in neighboring months, it is less. The influence on the maxima in summer is greatest in Beech-woods, less in Pine, and least in Fir. The absolute value of the influence in woods of a given kind of tree is affected by the degree of density of the wood, being higher the denser the wood. The character of the climate (oceanic or continental) also affects the results. From daily observations in forest and open country, every two hours in the second half of June, it appears that, soon after five A. M. and eight P. M., the air-temperature in the wood was equal to that in the open; that the maximum was about 0.9° lower in the wood, and the minimum 0.6° higher; that in May to September the difference sometimes reached 2.7°; that the maximum in the wood occurred about half an hour later, and the minimum a quarter of an hour earlier, than in the open; and that the daily mean air-temperature was about one-third of a degree less in the wood.

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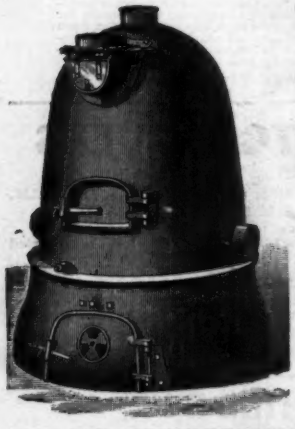

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